CIRC ACCESSION NO--AP0054772

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THERE IS CONSIDERED THE APPLICATION OF THE GRADIENT PROTECTION METHOD FOR THE SOLUTION FO AN OPTIMAL PROBLEM WITH THE PARAMETERS AND WITH STATE VARIABLE INEQUALITY CONSTRAINTS. THERE ARE ALSO STATED THE NECESSARY CONDITIONS OF THE OPTIMALITY OF CONTROL FOR THIS PROBLEM IN THE FORM ANALOGOUS TO THE DISCRETE VARIANT OF THE PRINCIPLE OF MAXIMUM.

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330006-5"

1/2 025 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--CHANGE IN A TITANIUM SLAG DURING THE COKING OF BRIQUETS -U-

AUTHOR-(04)-VASYUTINSKIY, N.A., LYSTSOV, A.I., BEREZHKO, A.V., SIDORENKO, A.P.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, METAL. 1970, (1) 247

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--COKE, PETROLEUM PRODUCT, TITANIUM, METALLURGIC SLAG, PHASE ANALYSIS, THERMAL EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/0599 STEP NO--UR/0370/70/000/001/0247/0247

CIRC ACCESSION NO--AP0105582

UNCLASSIFIED

2/2 025 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0105582

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THREE TYPES OF TI SLAGS WERE STUDIED: NONOXIDIZED TI SLAG, ANATASE SLAG, AND RUTILE SLAG. THE EFFECT OF TEMP. (800-1200DEGREES) ON THE PHASE COMPN. OF THE BRIQUETS MADE FROM THE SLAGS AND PETROLEUM COKE WAS DETD.

USSR

UDC 620.172:193.57

POPOVICH, V. V., BICHUYA, A. L., ZAMORA, M. F., MIZETSKIY, V. L., SHIL'NIKOVA, G. K., BEREZHKO, B. I., and CHAYEVSKIY, M. I., Institute of Physico Mechanics, Academy of Sciences, UkrSSR, L'vov; L'vov Polytechnical Institute

"Influence of Smelting Method on the Physical and Mechanical Properties of 15KhS1MFB Steel"

Kiev, Fiziko-Khimicheskaya Mekhanika Materialov, Vol 6, No 6, 1970, pp 93-97

Abstract: The corrosion resistance and long-term strength of ordinary and vacuum-smelted 15KhS1MFB steel were studied in a fused lead-bizmuth eutectic. The changes in microstructure, microhardness, coercive force, and electrical resistance of specimens tested for corrosion and long-term strength were studied. It is demonstrated that 15KhS1MFB steel, regardless of the method of smelting, is little influenced by the eutectic Pb-Bi alloy at 470-550°C. The vacuum-smelted steel has practically the same long-term strength as the ordinary steel, but somewhat better plasticity.

1/1

USSR B UDC 539.434.539.219.1

KARPENKO, G. V., KUSLITSKIY, A. B., MIZETSKIY, V. L., ZLOTNIKOV, S. A., TKACHEV, V. I., SHIL'NIKOVA, G. K., and BEREZHKO, B. I., L'vov, Leningrad

"Effect of the Composition of Nonmetallic Inclusions on the Fatigue Limit of Steel 20"

Moscow, Izvestiya Akademii Nauk SSR, Metally, No 1, Jan-Feb 1970, pp 104-108

Abstract: Qualitative investigations were made of programmed amounts of impurities in steel. In connection with this, experiments were conducted on the formation in steel of non-metallic inclusions of a given chemical composition: plastic silicates, alumina and high-alumina alumosilicates, semi-brittle silicates, and titanium nitrides. It is shown that the composition of non-metallic inclusions has a significant effect on the fatigue limit of the steel. Of the four types of inclusions studied, the most damaging proved to be plastic unsaturated silicates and titanium nitrides; silica inclusions were the least damaging. The principal negative role of non-metallic inclusions results in the appearance of considerable residual stresses owing to the difference in the physical properties of the inclusions and the metal matrix. These stresses are formed in the metal during unavoidable technological heating and cooling, even before external forces are applied.

1/1

1/2 008 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--UNSATURATED ETHERS XXXI. CONDENSATION OF BETA,ETHOXYACROLEIN ACETAL WITH VINYLALKYL ETHERS AND 1,ALKOXYDIENES. NEW METHOD FOR SYNTHESIZING
AUTHOR-(03)-MAKIN, S.M., ISMAYL, A.A., BEREZHNAYA, M.I.

COUNTRY OF INFO--USSR

SOURCE--ZH. ORG. KHIM. 1970, 6(3) 455-9

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL SYNTHESIS, CONDENSATION REACTION, ETHER, ACETAL, OXYGEN COMPOUND, DIENE, IMIDE, COMPLEX COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/1573 STEP NO--UR/0366/70/006/003/0455/0459

CIRC ACCESSION NO--AP0112567
UNCLASSIFIED

2/2 008 UNCLASSIFIED PROCESSING DATE--020CT70

CIRC ACCESSION NO--AP0112567

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REACTION OF ACROLEIN OR ITS DIACETAL WITH N,BROMOSUCCINIMIDE AND ETOH GAVE ETOCH SUB2-CHBRCH(OET) SUB2, WHICH WAS DEHYDROBROMINATED TO ETOCH: CHCH(OET) SUB2 (I). THE CONDENSATION OF I WITH H SUB2 C:CHOET OR ETOCH:CHCH:CH SUB2 IN THE PRESENCE OF ZHCL SUB2 AND BF SUB3 .ET SUB2 O GAVE, RESP., ETOCH:CHCH(OET)CH SUB2 CH(OET) SUB2 (II) OR ETOCH:CHCH(OET)CH SUB2 CH:CHCH(OET) SUB2 (III). THE CONDENSATION OF H SUB2 C:CHOET WITH III IN THE PRESENCE OF BF SUB3 .ET SUB2 O GAVE ETOCH:CHCH(OET)CH SUB2 CH:CHCH(OET)CH SUB2 CH(OET) SUB2 (IV). THE REACTIONS OF I-IV WITH RR PRIME1 NH IN 18PERCENT SOLN. GAVE (RR PRIME1 N-(CH:CH) SUBN CH:N PRIME POSITIVE RR PRIME1)CL PRIME NEGATIVE, (R, R PRIME1, AND N GIVEN): H, PH, 1; H, PH, 2; ME, PH, 2; H, PH, 3; ME, PH, 3; ME, PH, 4. THE PREPN. OF (X(CH:CH) SUBN X PRIME POSITIVE)CL PRIME NEGATIVE (WHERE X IS TETRAHYDROQUINOLINO AND N IS 2, 3, OR 4) WAS CARRIED OUT ANALOGOUSLY.

UNCLASSIFIED

USSR

UDC 539.3

BEREZHNITSKIY, L. T., PANASYUK, V. V., TRUSH, I. I., L'vov

"Stress Intensity Factors Near Hard Acute-Angle Inclusions"

Kiev, Problemy Prochnosti, No 7, Jul 73, pp 3-7.

Abstract: A method is presented for determination of the stress intensity factors near hard inclusions with corner points. In the case when the function mapping the exterior of the inclusion on the exterior of a unit circle is fixed in the form of a series, the problem is reduced to solution of a system of 2N algebraic equations. The effectiveness of the algorithm for calculation of stress intensity factors suggested is illustrated with a number of examples, most of which are studied in this article for the first time.

1/1

USSR

UDC 548.52

BEREZHKOVA, G. V., TSVETKOVA, I. N., ZAKHAROV, N. D., ROZHANSKIY, V. N., and KORYUKIN, V. I., Institute of Crystallography, Academy of Sciences USSR

"Growth Mechanisms of AlN Whiskers"

Moscow, Kristallografiya, Vol 16, No 5, Sep-Oct 71, pp 978-981

Abstract: The article describes results of a study of AlN whisker growth under isothermal conditions during the reduction of aluminum oxide with simultaneous nitration. The whiskers were grown in a horizontal graphite furnace in a flow of commercial nitrogen from an Al_2O_3 charge at 1950-1980° C. The resultant specimens were studied in a scanning and a transmission electron microscope and their brittle strength measured at room temperature. The results indicate both top growth from the vapor phase and bottom growth from the melt. In neither case is the presence of an axial screw dislocation a necessary condition for crystallization in whisker form. The article discusses possible growth mechanisms.

1/1

Superalloys

USSR UDC 539.52

BEREZHKOVSKIY, D. I., TsNIITMASh (Central Scientific Research Institute of Technology and Machine-Building)

"Critical Temperatures of Alloy Plasticity"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 5, May 73, pp 53-56

Abstract: A study is made of the high-temperature plasticity of certain heat-resistant nickel-base alloys with special emphasis on sharp changes in the plasticity at some temperatures arbitrarily called "critical." It should be noted that at these critical temperatures no phase transformation takes place. At subcritical temperatures in alloys with a cast structure the plasticity is considerably lower than in alloys with a deformed structure. The plasticity of the alloys increases at the critical temperature, regardless of the initial structure. The values of plasticity of cast and deformed and of hardened and annealed structures converge. It is shown that the values of the critical temperature of the alloy depend on its chemical composition, structural state, diagram, and rate of stress application.

1/1

Acc. Nr: AP0048823 Abstracting Service: CHEMICAL ABST. Ref. Code: UR0366

90232r New method for synthesizing cyanines based on glutaconaldehyde acetals. Makin, S. M.; Monich, N. V.; Shavrygina, O. A.; Berezhnaya, M. I.; Kheifets, S. A. (Mosk. Inst. Tonkoi Khim. Tekhnol. im. Lomonosova, Moscow, USSR). *Zh. Org. Khim.* 1970, 6(1), 107–12 (Russ). The condensation of 2,6-(RO-substituted)-Δ^3-dihydropyrans with ROH (R is Me or Et in both cases) gave $(RO)_2CHCH_2CH{:}CHCH(OR)_2$ (I). The condensation of I with $R^1CH{:}CHOR$ in the presence of $ZnCl_2$ gave $(RO)_2CHCH_2CH{:}CHCH(OR)CHR^1CH(OR)_2$ (II). Similarly, I reacted with $CHR^1{:}CR^2CR^3{:}CHOR$ to give $(RO)_2CHCH_2CH{:}CHCH(OR)CHR^1CR^2{:}CR^3CH(OR)_2$ (III). The hydrolysis of II with HCl in the presence of amines gave the following $XCH{:}CHCH{:}CHCH{:}CR^1CH{:}X^+Cl^-$ (R^1 and X given): H, PhNH; H, 1,2,3,4-tetrahydroquinolino; Me, PhNH; H, PhNMe. Similarly III with HCl gave $XCH{:}CHCH{:}CHCH{:}CR^1CR^2{:}CR^3CH{:}X^+Cl^-$ (R^1, R^2, R^3, and X given): H, H, H, PhNH; H, H, H, 1,2,3,4-tetrahydroquinolino; H, H, H, PhNMe; H, H, H, *p*-ClC_6H_4NH; H, H, H, *m*-$F_3CC_6H_4NH$; H, H, H, *p*-MeC_6H_4NH; H, H, H, PhNEt; H, H, Me, PhNH; Me, H, H, 1,2,3,4-tetrahydroquinolino; H, H, Me, 1,2,3,4-tetrahydroquinolino.

CPJR

REEL/FRAME 19800586

1/2 020 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--ESTIMATION OF THE INTERACTION OF RECTILINEAR CRACKS STARTING FROM ONE POINT -U-

AUTHOR--BEREZHNITSKIY, L.T.

B

COUNTRY OF INFO--USSR

SOURCE--FIZIKO KHIMICHESKIA MEKHANIKA MATERIALOV, VOL. 6, NR. 1, 1970, P. 89-91

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--METAL CRACKING, BIBLIOGRAPHY, CRACK PROPAGATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/0934 STEP NO--UR/0369/70/006/001/0089/0091

CIRC ACCESSION NO--AP0116443

UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--16OCT70
CIRC ACCESSION NO--AP0116443
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DEVELOPMENT OF AN APPROXIMATE METHOD FOR ESTIMATING THE CRITICAL EQUILIBRIUM OF A PLATE SUBJECTED TO OMNIDIRECTIONAL TENSION AND WEAKENED BY RECTILINEAR CRACKS STARTING FROM ONE POINT. AS AN EXAMPLE, A STUDY IS MADE OF THE INTERACTIONS OF FOUR, MUTUALLY PERPENDICULAR, RECTILINEAR CRACKS OF DIFFERENT LENGTHS.
FACILITY: AKADEMIIA NAUK UKRAINSKOI SSR, FIZIKO MEKHANICHESKII INSTITUT, LVOV, UKRAINIAN SSR.

UNCLASSIFIED

USSR UDC 539.3

PANASYUK, V. V., BEREZHNITSKIY, L. T., and TRUSH, I. I., Institute of Physico Mechanics, Academy of Sciences Ukrainian SSR, L'vov

"Crack Propagation in Composite Materials"

Kiev, Fiziko-Khimicheskaya Mekhanika Materialov, Academy of Sciences Ukrainian SSR, Vol 7, No 1, 1971, pp 108-110

Abstract: Conditions for the propagation of linear cracks, one apex of which lies in the inclusion material, and the other in the binder, were examined. An infinite isotropic body with a circular inclusion made of another homogeneous material was calculated. A linear crack was assumed to lie along a diameter of the inclusion and to enter the binder. The strength of adhesion between inclusion and binder was taken as not less than the strength of the components. A general expression was found for the limiting loads (exerted by uniformly distributed and mutually perpendicular forces) at which the crack can propagate at either terminus.

1/1

USSR UDC 621.791.55:/661.857+669.14/

BEREZHNITSKIY, S. N., BATAKSHEV, A. F., MITUS, A. K., ARTEMOV, N. S., and OFITSEROV, A. M., Engrs.

"Welding of Silver to Steel"

Moscow, Khimicheskoye i Neftyanoye Mashinostroyeniye, No 11, Nov 71, p 21

Abstract: Ag cannot be welded to steel directly, because it forms no compounds or solid solutions with Fe. Use of an intermediate layer of pure Cu is unsatisfactory, because deoxidizers and modifiers are absent in Cu, so that pores and cracks develop in the welded joints. Use of standard welding wires of Cu alloyed with Si, Ni, Mn, Ti, and Fe was tried in the lap and butt welding of Ag to steel in experiments in which pure Ag 2 mm thick was welded with steel St. 3 2-11 mm thick. Welding wires with a diameter of 2-3 mm that consisted of bronze Br. KMts 3-1 or bronze Br. MNZh KT5 - 1-0.2-0.2 were used. Welding was carried out manually in Ar with a direct current arc (150-200 A, 15-18 V) at a rate of 15-20 m/hr. The joints that formed had a sufficient mechanical strength and retained their tightness in vacuo at temperatures up to 779°, the melting point of the Ag-Cu eutectic. Microstructural analysis on etching with 4% HNO_3 showed that defects (cracks,

USSR

BEREZHNITSKIY, S. N., et al., Khimicheskoye i Neftyanoye Mashinostroyeniye, No 11, Nov 71, p 21

pores, and lack of joining) were absent in the transitional zone between Ag and steel. The procedure that has been developed is being applied in the experimental production of equipment made of Ag and Ag-clad steel and welded with Br. MNZh KT5-1-0.2-0.2.

2/2

USSR UDC 911.3:616.981.452(47)

SHEVCHENKO, V. L., IVANOV, S. I., ALTUKHOV, A. A., and BEREZHNOV, A. Z.

"Method and Tactics of Epizootiologic Survey for Plague in the Volga-Ural Sands"

V sb. Probl. osobo opasn. infektsiy (Problems of Especially Dangerous Infections -- collection of Works), Saratov, No 4(14), 1970, pp 129-134 (from RZh-Meditsinskaya Geografiya, No 3, Mar 71, Abstract No 3.36.116)

Translation: Epizootics of plague in the Volga-Ural interfluvial area are most frequent and constant over a wide area extending from the southwestern boundary of the sands through the central part to the north-eastern edge. The significance of the little suslik in the transfer of the pathogen during the summer months is reconfirmed. A scheme of fundamental methods for the examination of plague foci during the period of the interepizootic lull and during active periods is presented. Evaluation of the methods used for laboratory research is presented.

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USSR

UDC: 621.376

ADRIANOVA, I. I., BEREZHNOY, A. A., NESTEROVA, Z. V., and RUSETSKAYA, V. S.

"Ultra High-Frequency Light Modulation by Electrooptical Effects in a Zinc Selenide Crystal"

Moscow, Kvantovaya elektronika, No 7, 1972, pp 81-82

Abstract: It is asserted that cubic crystals have a number of advantages for use as light modulators due to the absence of a natural anisotropy and the presence of a linear electrooptical effect. Because of the first of these advantages, the optical system can be simplified and the modulator aperture increased; because of the second, the crystals are especially promising as light modulators at a uhf rate. This brief communication describes experiments performed with a uhf light modulator using a ZnSe crystal, which has a cubic structure, set in a waveguide. The latter is of rectangular cross section measuring 42 by 2 mm, and the crystal dimensions are 14 X 4 X 2 mm. A diagram of the device is shown. The frequency used in the experiments was 2600 MHz, and the uhf voltage applied to the modulator was obtained from a standard G4-10A oscillator operating in pulse mode at a repetition rate of 1 kHz, with a duty cycle of $\frac{1}{7}$ and a power level of less than 1 watt. The authors find that use of the

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USSR

ADRIANOVA, I. I., et al, Kvantovaya elektronika, No 7, 1972, pp 81-82

cubic crystal in this application is far more advantageous than the use of other types. They conclude by thanking K. K. Dubenskiy and V. A. Sokolov for preparing the ZnSe crystals.

2/2

1/2 018 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--LOW DENSITY OIL WELL CEMENTS CONTAINING POWDERED COAL -U-

AUTHOR-(02)-BEREZHNOY, A.I., KOMISSARCHIK, S.S.

COUNTRY OF INFO--USSR

SOURCE--NEFT. GAZOV. PROM. 1970, (1), 24-5

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CEMENT, COAL, CALCIUM CHLORIDE, CHEMICAL REACTION RATE, HARDNESS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/1969 STEP NO--UR/0513/70/000/001/0024/0025

CIRC ACCESSION NO--AP0133813

UNCLASSIFIED

2/2 018 UNCLASSIFIED PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AP0133813
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN OIL WELL CEMENT WITH LOW D. (1.02-1.5) IS MADE BY INCORPORATING 33-66PERCENT POWD. COAL IN CEMENT CONTG. CACL SUB2 OR OTHER SALTS TO CONTROL THE SETTING TIME. UP TO 25PERCENT AIR IS ENTRAINED WHEN THE COMPONENTS ARE MIXED. WITH INCREASING COAL CONTENT, THE D. IS DECREASED AND THE SETTING TIME IS INCREASED.

UNCLASSIFIED

ACC NR: AM7006425 Monograph UR/

Berezhnoy, Anatoliy Ivanovich

Pyroceramics and light-sensitive pyroceramics (Sitally i fotositally) Moscow, Izd-vo "Mashinostroyeniye", 66. 0347 p. illus., biblio. 6,000 copies printed.

TOPIC TAGS: photosensitivity, crystallization, ~~silicate glass~~, ~~lithium glass~~, optic glass, heat resistant glass, ~~photosensitive glass~~, pyroceram, ~~photopyroceram~~ high temperature ceramic material, glass composition, glass property

PURPOSE AND COVERAGE: This monograph, prefaced by N. A. Toropov, Professor and Corresponding Member of the Academy of Sciences USSR, was intended to meet the need for monographic literature on sitalls, which was felt by engineers and scientific workers of the sitall industries and research organizations, and also by students of related fields of specialization. Theory of photosensitivity and crystallization in glasses, production techniques, chemical composition, and properties of pyrocerams (sitalls) and photocerams (photositalls) are the main subjects of the monograph. Production technology of pyroceram, photopyroceram, and manufactured articles is covered in detail. Soviet and foreign literature data up to 1965 inclusive are cited in the text. The author's

UDC: 666.1/.7 5/9

ACC NR: AM7006425

own research data are included on photosensitive glasses and photositalls. Also, recent research is reported on East German "vitrokeram", Rumanian "glass porcelain", Hungarian "ninel'bit", Czechoslovak "kriston", and Polish "kwazikeramika" or "disilital'", which are equivalent to American pyroceram.

TABLE OF CONTENTS:

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 151/ OTH REF: 605

1/2 023 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--BASIC CHARACTERISTICS OF THE SUBSOLIDUS STRUCTURE OF MULTICOMPONENT SYSTEMS -U-
AUTHOR--BEREZHNOY, A.S.

B

COUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK UKRAINS'KOI RSR, VISNIK, VOL. 34, FEB. 1970, P. 49-55
DATE PUBLISHED----FEB70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SOLID STATE, THERMODYNAMIC PROPERTY, APPLIED MATHEMATICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/0860 STEP NO--UR/0655/70/034/000/0049/0055

CIRC ACCESSION NO--AP0116370

UNCLASSIFIED

2/2 023 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0116370

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THEORETICAL CONSIDERATIONS CONCERNING THE CHARACTERISTICS OF THE SUBSOLIDUS STRUCTURES OF A LARGE CLASS OF VISUALIZED MULTICOMPONENT SYSTEMS CONTAINING UP TO 94 COMPONENT ELEMENTS. EQUATIONS ARE GIVEN TO ESTIMATE THE CHARACTERISTICS OF MULTICOMPONENT SYSTEMS FROM GIVEN NUMBERS OF COMPONENTS AND PHASES. IT IS SHOWN THAT THE PHYSICOCHEMICAL CHARACTERISTICS OF MULTICOMPONENT SYSTEMS CEASE TO OBEY TRIVIALLY THE CLASSICAL THERMODYNAMIC RELATIONS INCLUDING THE PHASE RULE WHEN THE NUMBER OF COMPONENTS EXCEEDS 12.

1/3 016 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--MULTICOMPONENT SYSTEMS OF OXIDES -U-

AUTHOR--BEREZHNOY, A.S.

B

COUNTRY OF INFO--USSR

SOURCE--KIEV. NAUKOVA DUMKA. 1970. 541 PP.

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--IRON OXIDE, CHROMIUM OXIDE, ALUMINUM OXIDE, ZIRCONIUM OXIDE, MATHEMATIC METHOD, TITANIUM OXIDE, MAGNESIUM OXIDE, SILICON OXIDE, MONOGRAPH, BIBLIOGRAPHY, OXYGEN COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/0330 STEP NO--UR/0000/70/000/000/0001/0541

CIRC ACCESSION NO--AM0116013

UNCLASSIFIED

2/3 016 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AM0116013

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TABLE OF CONTENTS: PREFACE 5. INTRODUCTION 7. CHAPTER I MATHEMATICAL FORMULATIONS NECESSARY FOR THE STUDY OF THE SUBSOLIDUS STRUCTURE OF MULTICOMPONENT SYSTEMS 11. II PHYSICO CHEMICAL CHARACTERISTICS OF SUBSOLIDUS STRUCTURE OF MULTICOMPONENT SYSTEMS 29. III METHODS OF INVESTIGATION OF THE SUBSOLIDUS STRUCTURE OF MULTICOMPONENT SYSTEMS 36. IV ELEMENTS FORMING OXIDES OF A 9 COMPONENT SYSTEM CAO, MGO, FEO, FE SUB2 O SUB3, CR SUB2 O SUB3, AL SUB2 O SUB3 ZRO SUB2, TIO SUB2, SIO SUB2, THEIR BINARY SYSTEN AND THE SYSTEMS ELEMENT, OXYGEN 51. V BINARY SYSTEMS OF OXIDES OF 9 COMPONENT SYSTEM DIVIDED BY CAO, MGO, GEO, FE SUB2 O SUB3, CR SUB2 O SUB3, AL SUB2 O SUB3, ZRO SUB2, TI O SUB2, SIO SUB2 59. VI TRICOMPONENT SYSTEMS OF OXIDES OF THE 9 COMPONENT SYSTEM: CAO, MGO, FEO, FE SUB2 O SUB3, CR SUB2 O SUB3, AL SUB2 O SUB3, ZRO SUB2, TIO SUB2, SIO SUB2 157. VII 4 COMPONENT SYSTEMS OF OXIDES OF THE 9 COMPONENT SYSTEM CAO, MGO, FEO, FE SUB2 O SUB3, CR SUB2 O SUB3, AL SUB2 O SUB3, ZRO SUB2, TIO SUB2, SIO SUB2 243. VIII 5 COMPONENT SYSTEMS OF OXIDES OF THE 9 COMPONENT SYSTEM CAO, MGO, FEO, FE SUB2 O SUB3, CR SUB2 O SUB3, AL SUB2 O SUB3, ZRO SUB2, TIO SUB2, SIO SUB2 332. IX 6 COMPONENT SYSTEMS OF OXIDES OF THE 9 COMPONENT SYSTEM CAO MGO FEO FE SUB2 O SUB3, CR SUB2 O SUB3, AL SUB2 O SUB3, ZR O SUB2, TIO SUB2, SIO SUB2 359. X 7 AND 8 COMPONENT SYSTEMS OF OXIDES OF THE 9 COMPONENT SYSTEM CAO, MGO, FEO, FE SUB2 O SUB3, CR SUB2 O SUB3, AL SUB2 O SUB3, ZRO SUB2, TIO SUB2, SIO SUB2 376. XI THE 9 COMPONENT SYSTEM CAO, MGO, FEO, FE SUB2 O SUB3, CR SUB2 O SUB3, AL SUB2 O SUB3, ZRO SUB2, TIO SUB2, SIO SUB2 381.

UNCLASSIFIED

3/3 016 UNCLASSIFIED PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AM0116013
ABSTRACT/EXTRACT--XII THE SUBSOLIDUS STRUCTURE OF MULTICOMPONENT SYSTEMS OF OXIDES 455. XIII EXAMPLES OF PRACTICAL QUESTIONS REFERRING TO MULTICOMPONENT SYSTEMS OF OXIDES 470. CONCLUSION 484. LITERATURE 486. SYSTEM INDEX 539. GIVEN ARE THEORETICAL CONCEPTS ON THE STRUCTURE OF COMPLEX PHYSICO CHEMICAL SYSTEMS AND RESULTS ARE CITED IN THE STUDY OF THE SUBSOLIDUS STRUCTURE OF THE 9 COMPONENT SYSTEM CAO, MGO, FEO, FE SUB2 O SUB3, CR SUB2 O SUB3, AL SUB2 O SUB3, ZRO SUB2, TIO SUB2, SIO SUB2 AND ALSO MORE THAN 500 OF ITS SUBSYSTEMS WITH DIFFERENT NUMBERS OF COMPONENTS. DESCRIBED ARE REACTIONS IN THE SOLID STATE IN THESE SYSTEMS AND THE PROPERTIES OF THE FORMED COMPOUNDS.

UNCLASSIFIED

1/2 035 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--VISCOSITIES OF MAGNESIUM OXIDE,ALUMINUM OXIDE, ZIRCONIUM DIOXIDE,SILICON DIOXIDE SYSTEM MELTS -U-

AUTHOR-(02)-BEREZHNOY, A.S., ARAMYAN, V.G.

COUNTRY OF INFO--USSR

SOURCE--ARM. KHIM. ZH. 1970, 23(2), 201

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--FLUID VISCOSITY, LIQUID METAL, MAGNESIUM OXIDE, ALUMINUM OXIDE, SILICON DIOXIDE, ZIRCONIUM DIOXIDE, REFRACTORY MATERIAL, ACTIVATION ENERGY, ZIRCON

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1994/1892 STEP NO--UR/0426/70/023/002/0201/0201

CIRC ACCESSION NO--AP0115711

UNCLASSIFIED

2/2 035 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0115711

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE VISCOSITY WAS DETD. FOR THE HIGH TEMP. COMPNS. FOR 6 CROSS SECTIONS OF THE MGO-AL SUB2 O SUB3-ZRO SUB2-SIO SUB2 SYSTEM (SPINEL-ZRO SUB2, FORSTERITE-ZRO SUB2, MULLITE-ZRO SUB2, FORSTERITE-ZRSIO SUB4, MULLITE-ZRSIO SUB4, AND NONEQUIL. CORUNDUM-ZRSIO SUB4) AS A FUNCTION OF COMPN. AND TEMP. FOR EACH CROSS SECTION 7 COMPNS. WERE OBTAINED BY ADDING 10-70 WT. PERCENT OF THE ZR COMPONENT. DETNS. WERE MADE IN THE RANGE 50-200DEGREES LARGER THAN THE M.P. ADDNS. OF THE ZR COMPONENTS AFFECT THE MOBILITY OF THE COMPNS.; THE OPTIMUM CONCN. OF ZRO SUB2 EQUALS 10-30PERCENT OF ZIRCON EQUALS 20PERCENT. THE ACTIVATION ENERGIES OF THE VISCOUS FLOW WERE CALCD. AND THESE, ALONG WITH CALCD. VALUES OF THE STERIC FACTORS, ALLOW THE TEMP. TO BE DETD. AT WHICH THE VISCOSITY WILL REACH THE REQUIRED VALUE TO OBTAINED FUSED REFRACTORIES. REFRACTORY COMPNS. WERE SET UP AND RECOMMENDED WHICH SATISFY THE REQUIREMENTS FOR HIGH TEMP. MATERIALS.

FACILITY: EREVAN. NAUCH.-ISSLED. GORNO-MET. INST., EREVAN, USSR.

UNCLASSIFIED

AA0052679

UR 0482

Soviet Inventions Illustrated, Section III Mechanical and General, Derwent, 1-70

241231 AUTOMATIC BRAKING SYSTEM for e.g. aeroplane wheels, consists of brake cylinder, transducer 2 mounted on the wheel, and the rheostat 5 of the wheel braking moment. It is distinguished by the electromagnetic pump 3 and vessel 4 with which the system is provided. They are connected to the wheel brake cylinder through tubes and electrically connected to the brake moment rheostat and the transducer. This improves the system effectiveness.

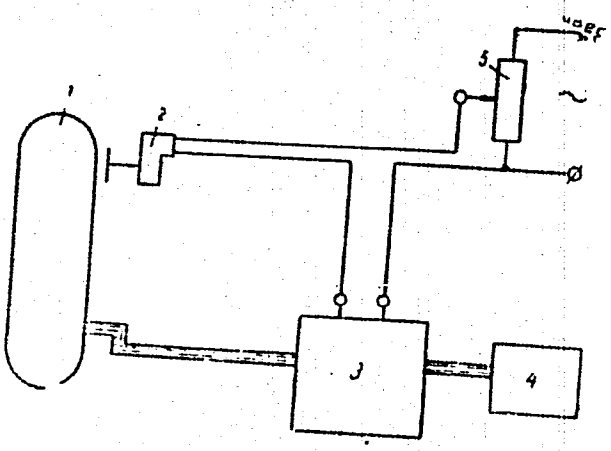
14.10.67 as 1190223/40-23. I.A. BEREZHNOI & V.I. TSEILER (1.4.69) Bul 13/22.8.69. Class 62b. Int.Cl. B 64c.

1/2

19821449

AA0052679

Berezhnoy, I. A.; Tseyler, V. I.



2/2

19821450

USSR

UDC 669.295.046.78

VELIKORODNYY, I. G., BEREZHNOY, N. N., BUGAYENKO, V. A., BERNADO, V. F., VOSKERICHYAN, A. KH.

"Study of the Magnetic Properties of the Process of Slag Pelletizing"

Sb. nauch. tr. N.-i. i proyekt. in-t po obogashch. i aglomer. rud chern. met. (Collected Scientific Works of the Scientific Research and Planning Design Institute with Respect to Beneficiation and Sintering of Ferrous Metal Ores), 1971, vyp. 15, pp 54-56 (from RZh-Metallurgiya, No 4, Apr 72, Abstract No 4G210)

Translation: The laboratory studies at the Mekhanobrchermet Institute with respect to pelletizing Ti slag and Fe and Ti concentrates established the possibility of obtaining pellets of satisfactory strength. One illustration and 1 table.

1/1

USSR UDC: 621.372.061

BEREZHNOY, V. I., LOSSOVSKIY, V. A.

"A Nonlinear Filter With П-Shaped Amplitude-Frequency Characteristic"

Tr. Kazan. aviats. in-ta (Works of the Kazan' Aviation Institute), 1970, vyp. 122, pp 72-77 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12A151)

Translation: The authors consider a nonlinear filter with a resonance system in which the capacitance of a sharp blocked PN junction and the capacitance of two series-opposed junctions are used as the storage elements. It is shown that the amplitude-frequency characteristic of the filter contains two non--identical amplitude discontinuities which cannot be made equal in value without changing the circuit. The passband of the filter depends on the voltage output factor of the blocked junction; the passband decreases as does the magnitude of the amplitude discontinuities with a reduction in the voltage output factor. Two illustrations, bibliography of five titles.
N. S.

1/1

USSR UDC: 621.777.01

OKHRIMENKO, YA. M., BEREZHNOV, V. I., SECHKERA, V. N. and SHARIKOV, G. S.

"A New Process of Rapid Extrusion of Low-Plasticity Alloys"

Moscow, Kuznechno-shtampovochnoye proizvodstvo, No 1, Jan 72, pp 6-9

Abstract: Detailed is a new process of high-speed forming of semifinished products, shapes,and pipes without lubricants using the principle of deformation friction between the container and the metal, with the friction oriented in the direction of the outflow of the extrudable metal. The study was conducted on cast AV, V96Ts, AMg6, AD31, D16, A00, LS59-1 and granulated 01435, S97 alloys under both laboratory and plant conditions. Analysis of the process indicates its potentialities in metalworking. The use of high-speed extrusion (as an alternative to direct extrusion) to produce rods from D16 alloy under semicontinuous conditions without lubricants increases the labor productivity 2.5 times as a result of the higher rate of outflow and yield of extrudable product as well as the elimination of some of intermediate operations specified in the current technology for separating the discard. The test results of high-speed extrusion under production conditions support the expediency of its further development and promotion for

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OKHRIMENKO, YA. M., et al, Kuznechno-shtampovochnoye proizvodstvo, No 1, Jan 72, pp 6-9

the fabrication of semifinished products, shapes, and pipes primarily from low-plasticity and hard-to-form alloys. (3 illustrations, 1 table, 6 bibliographic references).

2/2

1/2 018 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--ANALYSIS OF THE ACTIVE EXTRUSION OF LEAD BY VISUAL AND UPPER ESTIMATE METHODS -U-
AUTHOR-(02)-OKHRIMENKO, YA.M., BEREZHNOY, V.L.

COUNTRY OF INFO--USSR

SOURCE--TSVET. METALLY, FEB. 1970,(2), 55-59

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--METAL EXTRUSION, LEAD

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0193 STEP NO--UR/0136/70/000/002/0055/0059

CIRC ACCESSION NO--AP0123962

UNCLASSIFIED

2/2 018 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0123962

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXISTING EMTHODS OF STUDYING THE EXTRUSION OF PB AND SIMILAR METALS ARE SUMMARIZED AND DISCUSSED, AND THE MERITS OF COMBINING THE TECHNIQUE OF VISUAL ANALYSIS (STUDIES OF DEFORMATION USING INSCRIBED GRIDS ON THE BILLET SURFACE) WITH AN ANALYTICAL ESTIMATE OF THE UPPER LIMIT OF THE SPECIFIC PRESSURE ARE CONSIDERED. THE COMBINATION OF THESE TWO APPROACHES IS EXTREMELY PROMISING FOR THE STUDY OF ALL PROCESSES CONNECTED WITH METAL EXTRUSION.

UNCLASSIFIED

USSR UDC: 621.315.592

BEREZHNOY, V. N. and GRITSENKO, N. I.

"Transients in Films of Some Organic Semiconductors"

Leningrad, Fizika i tekhnika poluprovodnikov, Vol 4, No 11, 1970, pp 2032-2034

Abstract: This paper describes transients the authors observed in copper phthalocyanine and stilbene crystal organic semiconductor films, in which diffusion processes such as those observed in inorganic semiconductors do not play an important part. Measurements of these processes were made in "sandwich" structures made by sublimation in a vacuum of 10^{-5} mm Hg of films of the substance to be investigated on a substrate of glass or quartz. The thickness of the films of the two substances were 0.5-5 μm and 10-30 μm respectively, their resistivity being 10^{13} and 10^{15} ohms cm. Electrodes of Ag, Ni, Cu, Zn, and Al were used for the first material, and Ni and Ag for the second. Curves were given for the relaxation dark currents and the steady-state volt-ampere characteristics for both types of semiconductor film. The authors express their gratitude to M. V. Kurik for his interest in the work.

1/1

USSR

UDC 621.318.1-419.538.22

BEREZHNOY, Ye. F., and KOBELEV, V. V., Moscow

"Magnetostatic Interactions in Multilayer Magnetic Film Structures"

Moscow, Avtomatika i Telemekhanika, No 8, Aug 71, pp 168-176

Abstract: A method is proposed for analyzing magnetostatic interactions in multiple-layer magnetic film elements when the controlling fields act parallel to the unfavorable axis of magnetization. The solution is found by an operator method based on the bilateral Laplace transform. The properties of single-layer and two-layer films on a dielectric and on a conducting substrate are compared. It is shown that demagnetizing fields can be reduced by a considerable factor by proper selection of the thickness of magnetic and dielectric layers.

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200330006-5"

USSR UDC: 539.17.171

AKHIYEZER, A. I. and BEREZHNOY, Yu. A.

"Optical Potential Theory of Complex Particles"

Kiev, Ukrainskiy Fizicheskiy Zhurnal, No 8, 1973, pp 1278-1286

Abstract: The elastic scattering of nucleons and more complex particles by nuclei can be described by an optical model. The purpose of this paper is to construct the optical potentials of such complex particles as deuterons, tritons, He^3 nuclei, and alpha particles, on the basis of the Sitenko-Glauber diffraction theory, and to investigate "eclipsing" and nucleon-nucleon correlation effects in the nuclei on the magnitude of the optical potential. The analysis begins with a complex vector expression for the amplitude of the elastic scattering of a complex particle by a nucleus in the diffraction model. An expression is obtained for the mean-square radii of the optical potentials, a quantity which is a function of the dimensions of the particle incident on the nucleus. The authors express their thanks to A. P. Soznik for the numerical computations.

1/1

1/2 035 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--FARADAY EFFECT IN HOT ELECTRONS IN THE UHF, ULTRAHIGH FREQUENCY REGION -U-
AUTHOR-(03)-BEREZIKOV, E.D., POGORELSKIY, A.M., BARANOVSKIY, S.N.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(4), 779-80

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--FARADAY EFFECT, GERMANIUM SEMICONDUCTOR, ELECTRON TEMPERATURE, ELECTRON TRANSITION, ULTRAHIGH FREQUENCY, ELECTROMAGNETIC INTERACTION, ELECTROMAGNETIC WAVE POLARIZATION, DIELECTRIC CONSTANT, HALL MOBILITY, CRYSTAL ORIENTATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/0887 STEP NO--UR/0449/70/004/004/0779/0780

CIRC ACCESSION NO--AP0131474

2/2 035 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0131474

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ROTATION OF THE PLANE OF POLARIZATION OF A HIGH INTENSITY UHF ELECTROMAGNETIC WAVE WAS MEASURED. THE LATTER PASSES THROUGH THE SAMPLE (N-GE, RHO EQUALS 10 OHM-CM) AND HEATS UP THE ELECTRONS. THE DEPENDENCE OF THE FARADAY ROTATION ON THE INTENSITY OF THE HEATING FIELD AT ROOM TEMP. IS PLOTTED. AT THE FREQUENCY EMPLOYED (OMEGA EQUALS 2 PI 9.4 TIMES 10 PRIME9-SEC), THE CONDITION OMEGA TAU LESS THAN 1 (TAU IS THE RELAXATION TIME) IS SATISFIED, AND THE DIELEC. CONST. HAS THE SAME VALUE AS IN A STATIC FIELD. THE DEPENDENCE DELTA THETA OVER THETA EQUALS 3 OVER 2 DELTA MU SUBH OVER MU SUBH (THETA IS THE ROTATION ANGLE, MU SUBH IS THE HALL MOBILITY) DERIVED FOR HIGH FIELDS IS EXPTL. CONFIRMED FOR A FIELD VECTOR PARALLEL TO (111) AND AN INDUCTION VECTOR OF THE MAGNETIC FIELD PARALLEL TO (110). THE RESULTS AGREE WITH HALL MOBILITY MEASUREMENTS IN STRONG ELEC. FIELDS. FACILITY: NOVOSIBIRSK. ELEKTROTEKH. INST., NOVOSIBIRSK, USSR.

1/2 027 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--ANISOTROPY OF THE ULTRAHIGH FREQUENCY OF FARADAY ROTATION IN N GERMANIUM IN STRONG ELECTRIC FIELDS -U-

AUTHOR-(04)-BARANOVSKIY, S.N., BEREZIKOV, D.D., GORLOV, B.B., POGORELSKIY, A.M.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(3), 589-91

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ANISOTROPY, ULTRAHIGH FREQUENCY, ROTATION, GERMANIUM, ELECTRIC FIELD

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/1720 STEP NO--UR/0449/70/004/003/0589/0591

CIRC ACCESSION NO--AP0120432

UNCLASSIFIED

2/2 027 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0120432

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ANISOTROPY OF THE ULTRAHIGH FREQUENCY (UHF) OF FARADAY ROTATION IF STRONG ELEC. FIELDS WAS STUDIED ON N-GE TO DET. THE ANISTROPY OF THE HALL MOBILITY. FARADAY ROTATION EXPTS. WERE PERFORMED AT ROOM TEMP. AND.A FREQUENCY OF 9.4 GHZ. DISK SHAPED, ROTATABLE SAMPLES OF N-GE (P SIMILAR TO 10 OHM-CM) WERE PLACED IN A ROUND WAVE GUIDE, THE DIRECTION OF THE UHF WAVE BEING PARALLEL TO THE (110) DIRECTION OF THE DISK. MAGNETIC FIELD IN SAMPLES WAS INDUCED BY A SOLENOID. THE DEPENDENCE OF FARADAY ROTATION ANGLE (THETA) ON THE STRENGTH OF ELEC. FIELD OF THE INCIDENT WAVE WAS TAKEN FOR FIELD DIRECTIONS PARALLEL TO (111) AND (100). FROM THESE CURVES, ANISOTROPY AND SATN. OF FARADAY ROTATION IN STRONG FIELDS WAS DETD. THE ANGULAR DEPENDENCE OF FARADAY ROTATION ON DIRECTION OF A MEAN ELEC. FIELD IN THE SAMPLE (E EQUALS 1300 V-CM) WAS ALSO EXAMD. A RELATION BETWEEN FARADAY ROTATION AND HALL MOBILITY ANISOTROPY WAS FOUND. FACILITY: NOVOSIBIRSK. ELEKTROTEKH. INST., NOVOSIBIRSK, USSR.

UNCLASSIFIED

USSR

UDC 621.735.043.016.3:669.14.018.252.3

CHERNYY, YU. F., ALISTRATOV, L. I., BEREZIN, A. A., GALKIN, A. A., KOVIKO, V. S., KULIKOV, N. I., SPUSKANYUK, V. Z., and SHTOKMAN, A. D.

"Industrial Introduction of Technique of Hydropressing of Tool Billets From Steels R18, R12, R9"

Moscow, Kuznechno-Shtampovochnoye Proizvodstvo, No 8, Aug 71, pp 11-12

Abstract: Experimental investigations at Dnepropetrovsk Physicotechnical Scientific Research Institute, Academy of Sciences Ukrainian SSR, showed that the cold plastic deformation of billets of high-speed steels R18, R12, and R9 by the hydropressing method results in significant refinement and more uniform distribution of the carbide phase. Investigations of R18 steel billets following hydropressing, annealing, and heat finishing showed an increase in the mechanical properties and thermostability of the steel, while production tests of 10-mm-diameter reamers showed a 60-70 percent increase in tool durability. Hydropressing of cylindrical round-section billets from R18, R12, and R9 bars up to 30 mm in diameter has been introduced at one of the

USSR

CHERNYY, YU. F., et al., Kuznechno-Shtampovochnoye Proizvodstvo, No 8, Aug 71, pp 11-12

Donetskaya Oblast plants. A model P479 hydraulic press is used for billet deformation. The hydropressing setup consists of a high-pressure multilayer container, rod and die with gasketing, an upper and lower plate, and a centerer and fastener. The tool billet hydropressing process provides for the preparation of initial billets, straining of the billets, and their subsequent treatment. Kh12M steel (HRC 57-59) is used for the die. The economic advisability of using the technique of high-speed steel hydropressing for the fabrication of tool billets is based mainly on the increased tool durability as a result of the improved structure and physicomechanical properties of the steel after deformation. There is a saving in high-speed steels because the billet comes as close as possible to the tool size.

2/2

1/2 026 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--SEMIEMPIRICAL MODEL IN THE THEORY OF THE RADIATIVE DECAY OF AN EXCITED F CENTER -U-

AUTHOR--BEREZIN, A.A.

B

COUNTRY OF INFO--USSR

SOURCE--VESTN. LENINGRAD. UNIV., FIZ., KHIM. 1970, (1), 38-46

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--RADIATIVE TRANSITION, F CENTER, WAVE FUNCTION, MATHEMATIC MODEL, EXCITED ELECTRON STATE, DIPOLE INTERACTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1830 STEP NO--UR/0054/70/000/001/0038/0046

CIRC ACCESSION NO--AP0123619

UNCLASSIFIED

2/2 026 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0123619

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A METHOD FOR DETN. OF SEMIEMPIRICAL WAVE FUNCTIONS OF F CENTERS AND THEIR UTILIZATION FOR PROBABILITY CALCNS. OF RADIATIVE DECAY OF EXCITED ELECTRON STATES IS PROPOSED. THE DIPOLE TRANSITION PROBABILITY MAY BE EXPRESSED IN TERMS OF A COORDINATE OR PULSE MATRIX ELEMENT BETWEEN THE 2 STATES. BOTH FORMULAS ARE EQUIV., BUT LEAD TO DIFFERENT RESULTS FOR THE APPROX. WAVE FUNCTIONS. THE EXPTL. F ABSORPTION AND F EMISSION BAND MAX. ARE USED TO DET. THE SEMIEMPIRICAL FUNCTION OF THE GROUND AND RELAXED 1ST EXCITED STATES. THE RESULTS OF CALCN. ARE IN REASONABLE AGREEMENT WITH EXPT.

UNCLASSIFIED

USSR

UDC 533.916

BEREZIN, A. K., FAYNBERG, Ya. B., SHAPIRO, V. D., BEREZINA, G. P., ZEYDLITS, V. P.

"Investigating Low-Frequency Instabilities in a Plasma-Beam Discharge by Correlation Analysis"

Kiev, Fizika plasmy i problemy upravlyayemogo termoyadernogo sinteza, 1971, Naukova dumka, pp 129-133

Abstract: A method is described for determining the degree of stochasticity of the oscillations excited in a plasma-beam discharge. The method is based on measurements of the oscillation space-time correlation functions, the latter having the form $R(\underline{l},\tau) = \overline{E_z(z,t)E_z(z+\underline{l},t+\tau)}$, where E_z is the intensity of the high-frequency electric field and the horizontal line above the expression indicates averaging over z and t. The authors also describe experiments they performed to determine the degree of

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USSR

BEREZIN, A. K. et al, Fizika plasmy i problemy upravlyayemogo termoyadernogo sinteza, 1971, Naukova dumka, pp 129-133

stochasticity of the excited oscillations by investigating the shape of the oscillations with movable antenna loops along the beam close to the glass chamber containing the plasma and oriented to the H_z component of the field. The autocorrelation functions, frequency spectra, and wave number spectra were obtained for the envelope and the low-frequency oscillations excited in the plasma beam discharge. A block diagram of the experimental apparatus is given.

2/2

USSR

BEREZINA, G. P., BEREZIN, A. K., and ZEYDLITS, V. P., Physico-Technical Institute of the Academy of Sciences Ukrainian SSR

"Experimental Investigation of the Stochastic Acceleration of Ions in an Intense Plasma-Beam Discharge"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 14, No 2, 20 Jul 71, pp 77-80

Abstract: Two modes of excitation of low-frequency oscillations can be distinguished in a pulsed plasma-beam discharge. The first mode at relatively low pressures is characterized by an excitation of ion-sonic oscillations which after 30-40 microseconds convert into oscillations which belong to the second mode. Included in this mode also are the oscillations generated during the entire duration of the current pulse at a higher gas pressure in the system. This article is concerned with the results of investigating the stochastic acceleration of ions during the excitation of low-frequency oscillations in the second mode. The authors describes the experiment and results and give two figures to support and illustrate their position. Figure 1 shows the function of mutual correlation of oscillations excited by azimuth; and Figure 2 shows one of the oscillations excited in the second mode.

USSR

BEREZINA, G. P., et al., Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 14, No 2, 20 Jul 71, pp 77-80

the frequency spectrum, the spectral density of the energy of these oscillations, the time variation in the phase of the investigated oscillations, and the energy spectrum of the ions generated by exciting low-frequency oscillations under the conditions of the second mode . The authors discuss the study of low-frequency oscillations and mechanisms for the transport of energy from the electron beam to theplasma ions in the second mode of the intense plasma-beam discharge. The article contains 2 figures and 4 bibliographic entries.

2/2

USSR UDC: 681.327.66

BEREZIN, A. S., VAGANOV, V. I., KUZ'MIN, V. A., MOCHALKINA, O. R., ONISHCHENKO, Ye. M., ORLIKOVSKIY, A. A., PERSHENKOV, V. S., Moscow "Order of the Red Banner of Labor" Engineering Physics Institute

"An Integrated Thyristor Memory Element"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 20, Jul 72, Author's Certificate No 343299, Division G, filed 7 Oct 70, published 22 Jun 72, p 174

Translation: This Author's Certificate introduces an integrated thyristor memory element which contains a thyristor with longitudinal structure, and a recording readout transistor connected by its collector to the P-base of the thyristor, and by its base through a resistor to the word recording input. As a distinguishing feature of the patent, the degree of integration is increased, and the interference immunity and recording and readout speed are increased by connecting the readout transistor emitter to the thyristor emitter, and also through a resistor to the word readout input, and by connecting the base of the readout transistor to the zero-potential line.

1/1

1/2 035 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--OXIDATIVE DEGRADATION OF POLYMERIC PHTHALOCYANINE AND ITS COMPLEXES -U-

AUTHOR-(02)-SHORMANOVA, L.P., BEREZIN, B.D.

B

COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN., SER. A 1970, 12(3), 692-6

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--OXIDATIVE DEGRADATION, PHTHALOCYANINE, COPPER COMPLEX, ZINC COMPLEX, GALLIUM COMPOUND, OSMIUM COMPOUND, SPECTROPHOTOMETRY, POLYMER, OXIDATION, CHEMICAL REACTION MECHANISM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/0317 STEP NO--UR/0459/70/012/003/0692/0696

CIRC ACCESSION NO--AP0111511

UNCLASSIFIED

2/2 035 UNCLASSIFIED PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0111511

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TO THE SOLNS. OF 10 PRIME NEGATIVE3 NEGATIVE10 PRIME NEGATIVE5 M POLYPHTHALOCYANINE (I) OR ITS COMPLEXES WITH CU PRIME2 POSITIVE, ZN PRIME2 POSITIVE, GA PRIME3 POSITIVE, OR OS PRIME4 POSITIVE IN 17N H SUB2 SO SUB4, 10 MOLAR EXCESSES OF H SUB2 O SUB2, (NH SUB4)SUB2 S SUB2 O SUB3,OR KNO SUB3 WERE ADDED. THE OXIDN. OF I OR THEIR COMPLEXES CAUSES THE DISCHARGE OF THE SOLN. COLOR, PERMITTING THE OXIDN. RATE DETN. BY SPECTROPHOTOMETRY. THE OXIDN. RATES OF I ARE ANALOGOUS TO THE HYDROLYTIC I DECOMPN. RATES (B., ET AL., 1968). I AND ITS COMPLEXES ARE LESS STABLE IN OXIDIZING MEDIA THAN THE MONOMERIC PHTHALOCYANINES. AN OXIDN. MECHANISM IS PROPOSED.

UNCLASSIFIED

1/2 015 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--CHARACTERISTICS OF THE CHROMOPHORES OF THIO DERIVATIVES OF MACROCYCLES AND THIOPHTHALOCYANINE BASED ON SPECTRAL DATA -U-
AUTHOR-(03)-KLYUYEV, V.N., BEREZIN, B.D., SNEGIREVA, F.P.

CCUNTRY OF INFC--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., KHIM. TEKHNOL. 1970, 13(2), 209-13

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--PHTHALOCYANINE, POLYNUCLEAR HYDROCARBON, HETEROCYCLIC NITROGEN COMPOUND, ORGANIC SULFUR COMPOUND, COPPER COMPOUND, ABSORPTION BAND SPECTRUM, COLOR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/0167 STEP NO--UR/0153/70/013/002/0209/0213

CIRC ACCESSION NO--AT0132445
UNCLASSIFIED

2/2 015 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AT0132445

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. REPLACEMENT OF C ATOMS BY S IN THE PHTHALOCYANINE (I) RING, AND THAT OF A MACROCYCLE (II) RESULTS IN A DISPLACEMENT OF ABSORPTION BANDS IN BOTH II AND ITS CU DERIV. THE PRINCIPAL ABSORPTION BANDS IN II, AND IN II WITH S ATOMS IN 1; 2 AND 3; AND 1, 2, AND 3 POSITIONS ARE 360 AND 510; 360 AND 500; 345 AND 480; 335 AND 430 NM WITH INTENSITIES (LOG EPSILON) IN THE RANGES 3.15-3.37 AND 2.95-3.06. BANDS FOR THE CORRESPONDING CU DERIVS. ARE : 379, 550, 687; 360, 490, 540, 655; 335, 450, 530, 650; AND 335, 430, 510, 615 NM WITH LOG EPSILON: 3.23-3.50 FOR THE 1ST BAND 2.84-2.99 FOR THE 2ND, 2.68-2.89 FOR THE 3RD (WHERE PRESENT), AND 2.06-2.38 FOR THE LAST. FOR CU (I), BANDS ARE FOUND AT 680, 614, AND 346 NM, WHILE IN ITS TETRATHIO DERIV. THE BAND POSITIONS ARE AT 455, 440, AND 310 NM. A THEORY EXPLAINING THE EFFECT OF S ATOMS ON THE CHROMOPHORIC CHARACTERISTICS IS PRESENTED. FACILITY: IVANOV. KHIM.-TEKHNOL. INST., IVANOVO, USSR.

UNCLASSIFIED

1/2 026 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--EFFECT OF THE STRUCTURE OF THE COORDINATION SPHERE OF THE SALT ON THE KINETICS OF THE FORMATION OF MERCURY,II,PHEOPHYTIN COMPLEXES -U-

AUTHOR-(02)-VOLKOVA, N.I., BEREZIN, B.D.

B

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(4), 961-5

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL BONDING, CHEMICAL REACTION KINETICS, MERCURY COMPOUND, CHLORIDE, IODIDE, ORGANIC SOLVENT, METAL COMPLEX COMPOUND, ENTROPY, ACTIVATION ENERGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/2035 STEP NO--UR/0078/70/015/004/0961/0965

CIRC ACCESSION NO--AP0132292

UNCLASSIFIED

2/2 026 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0132292

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE E SUBA, DELTA S PRIME POSITIVE POSITIVE, AND RATE CONSTS. OF REACTIONS OF (HGI SUB4) PRIME2 NEGATIVE, HGI SUB2, (HGCL SUB4) PRIME2 NEGATIVE, AND HGCL SUB2 WITH PHEOPHYTINE IN MEOH OR ETOH SOLNS. ARE GIVEN. IN MEOH, HGI SUB4 PRIME2 NEGATIVE IS MORE SOLVATED THAN IS HGI SUB2 AND AS A RESULT DELTAS PRIME POSITIVE POSITIVE OF ITS REACTION IS POS. AND THAT OF HGI SUB2 IS NEG. THE SOLVATION EFFECT OF THESE 2 COMPLEXES IN ETOH WAS THE OPPOSITE FROM THAT IN MEOH. HGX SUB2 (X EQUALS I OR CL) REACTED MUCH FASTER WITH PHEOPHYTIN IN ETOH THAN IN MEOH WITH MEOH WAS A BETTER SOLVENT FOR HGX SUB4 PRIME2 NEGATIVE REACTIONS. FACILITY: IVANOV. KHIM.-TEKHNOL. INST., IVANOVO, USSR.

UNCLASSIFIED

USSR

UDC: 621.378.325

BALASHOV, I. F., BEREZIN, B. G., and YERMAKOV, B. A.

"Peculiarities in the Generation of Monopulse Radiation With Non-Instantaneous Switching of the Laser Resonator"

Leningrad, Zhurnal tekhnicheskoy fiziki, No 2, 1972, pp 385-390

Abstract: "Instantaneous switching" is defined as a type of laser operation in which the time interval for switching in the resonator is less than the interval required for development of the oscillation to produce maximum monopulse radiation. For obtaining optimal energy characteristics as well as stabilization of the monopulse energy with variations in pumping energy, however, non-instantaneous switching is sometimes desirable. In this paper, the peculiarities of non-instantaneous switching are theoretically and experimentally investigated when the switching is done by an optical-mechanical gate which varies the Q of the resonator. The energy of the monopulse radiation is obtained as a function of the pumping energy for a given type of loss variation from known equations. The experimental part of the work involved the use of a ruby laser and a laser using KGSS-46-2 glass; the effect of displacing the resonator mirror during oscillation development was determined through fast switching by a Kerr gate. The authors

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USSR UDC: 621.378.325

BALASHOV, I. F. et al, Zhurnal tekhnicheskoy fiziki, No 2, 1972, pp 385-390

thank V. A. Berenberg, V. V. Blagoveshchenskiy, and V. A. Telenkevich for their participation in the experiments.

2/2

USSR

BEREZIN, B. G.; YERMAKOV, B. A.

"Obtaining Polarized Radiation in a Neodymium Glass Laser"

Leningrad, Optika i Spektroskopiya; August, 1969; pp 310-2

ABSTRACT: A means of obtaining linearly polarized radiation in a neodymium glass laser without loss of energy was studied. In the experiment a Glan-Thompson prism made of Iceland spar was used as the polarizing element; the neodymium glass rod had a diameter of 10 mm and a length of 120 mm, and the reflection coefficient of the partially transparent mirror was equal to 0,65. The author expresses his thanks to I. F. Balashov for his discussion of the work.

The article includes three figures. There is one reference.

1/1

USSR

UDC 536.421.1

BEREZIN, B. YA., KENISARIN, M. M., and CHEKHOVSKOY, V. YA., Institute of High Temperatures, Acad. Sc. USSR

"Melting Point of Niobium"

Moscow, Teplofizika Vysokikh Temperatur, Vol 10, No 6, Nov-Dec 72, pp 1214-1217

Abstract: 21 determinations of the melting point of niobium were carried out on a material containing 99.7% niobium, 0.18% Ta, 0.005% W, 0.01% Ti, 0.04% Si, 0.005% Fe, 0.005% O_2, 0.001% H_2, 0.01% C, and 0.001% N_2. The temperature was determined by means of two optical monochromatic pyrometers of the EOP type and a model of absolute black body. The average melting point is 2469 $\pm$ 1.3° C.

1/1

Thermodynamics

USSR UDC: 536.421+536.421.1

CHEKHOVSKOY, V. Ya., BEREZIN, B. Ya.

"Experimental Study of the Heat of Fusion of Refractory Metals"

Tr. Vses. nauchno-tekhn. konferentsii po termodinamike. Leningr. tekhnol. in-t kholodil'n. prom-sti (Works of the All-Union Scientific and Technical Conference on Thermodynamics. Leningrad Technological Institute of the Refrigeration Industry), Leningrad, 1970, pp 379-382 (from RZh-Fizika, No 9, Sep 70, Abstract No 9Ye491)

Translation: The blending method in combination with levitation melting was used to determine the melting point T of the refractory metals W, Ta, Mo, Ru, Nb, V, and Cr. The values 3380, 2996, 2620, 2500, 2470, 1920, and 1890°C respectively were found.

1/1

1/2 006 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--RELATIONSHIPS BETWEEN THE CORRELATION FUNCTIONS IN CLASSICAL STATISTICAL PHYSICS -U-
AUTHOR--BEREZIN, F.A.

B

COUNTRY OF INFO--USSR

SOURCE--TEORETICHESKAYA I MATEMATICHESKAYA FIZIKA, 1970, VOL 3, NR 1, PP 115-125
DATE PUBLISHED--------70

SUBJECT AREAS--MATHEMATICAL SCIENCES

TOPIC TAGS--CORRELATION FUNCTION, SERIES, STATISTIC ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/1030 STEP NO--UR/0646/70/003/001/0115/0125

CIRC ACCESSION NO--AP0130065
UNCLASSIFIED

2/2 006 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0130065

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AIM OF THE WORK IS TO DEDUCE THE EXPLICIT EXPRESSION OF HIGHER CORRELATION FUNCTIONS IN THE GREAT CANONICAL ESEMBLE IN TERMS OF THE FIRST AND SECOND CORRELATION FUNCTIONS. THE EXPRESSION OBTAINED HAS THE FORM OF THE EXPANSION OVER THE POWERS OF THE FIRST CORRELATION FUNCTION (DENSITY), AND THE FIRST TERM OF THIS EXPANSION COINCIDES WITH THE SO CALLED SUPERPOSITION APPROXIMATION OF KIRKWOOD (FORMULA SHOWN ON MICROFICHE) IS THE NORMALIZED CORRELATION FUNCTION. THE CONVERGENCE OF SERIES OBTAINED IS NOT INVESTIGATED. FACILITY: MOSKOVSKIY GOSUDARSTVENNYY UNIVERSITET.

UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--ADSORBED LAYERS OF BENZENE AND N HEXANE ON GRAPHITIZED CARBON BLACK STUDIED FROM HEAT CAPACITY DATA -U-

AUTHOR-(03)-BEREZIN, G.I., KISELEV, A.V., SINITSYN, V.A.

COUNTRY OF INFO--USSR

B

SOURCE--Zh. FIZ. KHIM. 1970, 44(3), 734-40

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--BENZENE, HEXANE, CARBON BLACK, HEAT CAPACITY, ADSORPTION, ISOTHERM, VAN DER WAALS EQUATION, COMPLEX COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1196 STEP NO--UR/0076/70/044/003/0734/0740

CIRC ACCESSION NO--AP0128614

UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0128614

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RELATION BETWEEN HEAT CAPACITY OF N HEXANE AND C SUB6 H SUB6 ADSORBED ON C BLACK AND THE AMT. ADSORBED ON THE SURFACE WAS DETD. THIS RELATION AS WELL AS ADSORPTION ISOTHERMS AND THE DEPENDENCE OF THE DIFFERENTIAL HEAT OF ADSORPTION ON THE AMT. ADSORBED CAN BE DESCRIBED SATISFACTORILY BY MODELS TAKING INTO ACCOUNT ADSORBATE ADSORBATE INTERACTIONS IN THE 1ST ADSORBED LAYER. THUS, THE STATE OF ADSORBED C SUB6 H SUB6 CAN BE DESCRIBED BY VAN DER WAALS TYPE 2,DIMENSIONAL EQUAITON OF STATE WHEREAS THAT OF N HEXANE IS DESCRIBED BY A MODEL ASSUMING THE FORMATION OF 2 DIMENSIONAL COMPLEXES OF ADSORBED MOLS. FACILITY: INST. FIZ. KHIM., MOSCOW, USSR.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--THERMODYNAMIC STUDY OF THE TRANSITION OF ADSORBED BENZENE TO A CRYSTALLINE STATE -U-
AUTHOR-(05)-BEREZIN, G.I., KISELEV, A.V., KOZLOV, A.A., KUZNETSOVA, L.V., FIRSOVA, A.A.
COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(2), 541-3

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--BENZENE, CRYSTAL, HEAT CAPACITY, ADSORPTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/1422 STEP NO--UR/0076/70/044/002/0541/0543

CIRC ACCESSION NO--AP0116869
UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--23OCT70
CIRC ACCESSION NO--AP0116869
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TRANSITION OF C SUB6 H SUB6, ADSORBED IN A POROUS ADSORBENT, FROM THE STATE OF CAPILLARY CONDENSATE TO A CRYST. PHASE OCCURS AT 0 TO MINUS 50DEGREES. THIS WAS EVIDENCED BY A SHARP MAX. IN THE TEMP. DEPENDENCE OF THE HEAT CAPACITY OF ADSORBENT CONTG. C SUB6 H SUB6 IN THE ABOVE TEMP. INTERVAL. THE TRANSITION OF ADSORBED C SUB6 H SUB6 TO THE CRYST. PHASE IS ACCOMPANIED BY A SHARP DECREASE IN THE MAX. ADSORPTION CAPACITY A SUBS. THE VALUES A SUBS WERE VIRTUALLY CONST. BELOW AND ABOVE THE TEMP. INTERVAL OF PHASE TRANSITIONS. FACILITY: INST. FIZ. KHIM., MOSCOW, USSR.

UNCLASSIFIED

USSR UDC 621.397.238:621.397.62

KOROBKOV, L. A., TSIRLIN, V. M., SHESTAKOV, Yu. N., PETROV, V. A., PALITSKIY, V. M., KHOROBRYKH, V. T., BEREZIN, I. I.

"A Device for Reception of Television Image Signals With Accompanying Audio"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, 1970, No 36, Soviet Patent No 288028, class 21, filed 19 Apr 67, published 3 Dec 70, p 52

Translation: This Author's Certificate introduces a device for reception of television image signals with accompanying audio combined in a single channel of a television system. The device contains a synchropulse selector, sound and image separation modules, and modules for demodulating the audio channel signals. As a distinguishing feature of the patent, the device is designed for reducing transient interference and increasing the resistance to interference of the accompanying audio channel. Connected at the input of the installation are two devices for restoring the DC component of the video signal. One of these signal-restitution devices is connected to a device for synchromixture regeneration through an electronic switch controlled by a signal from the synchropulse selector. Signals from the synchropulse selector and synchrogenerator are sent to the device for

USSR

KOROBKOV, L. A., et al., Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, 1970, No 36, Soviet Patent No 288028, class 21, filed 19 Apr 67, published 3 Dec 70, p 52

synchromixture regeneration. The second signal-restitution device is connected to a code-pulse demodulator and an amplifier through an electronic switch controlled by a signal from the synchropulse selector. The signal from the amplifier is sent to the output of the device through an optimum low-frequency filter and a bilateral clipper with low-frequency filter. Priority dates from 2 March 1967.

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USSR

UDC 616.831-008.922.1.04-085.835.12

BEREZIN, I. P., and PIGAREV, V. A., All-Union Scientific Research Institute of Surgical Apparatus and Instruments and Central Institute for the Advanced Training of Physicians, Moscow

"Inhalation of Oxygen at Increased Pressure as a Method of Combating Cerebral Hypoxia"

Moscow, Voprosy Neyrokhirurgii, Vyp 6, Nov/Dec 71, pp 46-49

Abstract: Experimental brain hematoma, produced in rats, rabbits, and cats by injecting up to 3 ml of the animal's own blood into the brain's internal capsule, causes severe cerebral hypoxia (recorded by implanted electrodes), loss of consciousness, and eventually death. No significant improvement is achieved by placing the animals in a hyperbaric chamber filled with pure oxygen at 1 atm. However, when the partial pressure of oxygen is raised to 3 atm, oxygen tension in brain tissue returns to normal within 2 hrs, and the animals resume an almost normal activity. After these animals are switched back to room air, cerebral oxygen tension falls again, but not to critical levels. The over-all condition of the animals deteriorates less severely, and the animals survive.

1/1

USSR UDC 615.471:[615.835.3.099.07+615.916:546.21]-07

NABATOV, Yu. A., BEREZIN, I. P., BALDIN, V. P., and ROSTOVTSEV, B. N., All Union Scientific Research Institute of Surgical Equipment and Instruments, Moscow

"An Apparatus That Signals Impending Toxicity of Oxygen"

Moscow, Meditsinskaya Tekhnika, No 4, 1971, pp 23-26

Abstract: A device that indicates when oxygen is about to become toxic during a session of hyperbaric oxygen therapy is described. The device automatically records the frequency of brain waves and appearance of "spike potentials" and acceleration of the respiratory and pulse rates after a period of relative slowing in the course of adaptation to high partial pressure of oxygen. When these physiological parameters reach certain values, the memory element is automatically triggered and a signal is sent to the system that controls oxygen pressure in the pressure chamber. The pressure is then automatically lowered to the required level. There is also an attachment for manual control of oxygen pressure.

USSR UDC: 612.674

BEREZIN, I. P., SULTANOV, T. A., PIGAREV, V. A., and NABATOV, Yu. A., All Union Scientific Research Institute of Surgical Apparatus and Instruments, and Central Institute for Advanced Training of Physicians, Moscow

"Early Manifestations of the Toxic Effects of Hyperbaric Oxygen"

Moscow, Eksperimental'naya Khirurgiya i Anesteziologiya, No 6, Nov/Dec 70, pp 50-54

Abstract: Four stages were traced in the manifestation of the toxic effects of oxygen (3 atm) inhaled by dogs and cats: (1) slowing of the respiratory and pulse rates; (2) appearance of slow waves on the EEG, acceleration of the respiratory and pulse rates, and autonomic disturbances (pupil contraction or dilatation); (3) maximum increase in slow waves, high-amplitude discharges of acute waves, local hyperkinesia, restlessness, intensification of autonomic disturbances (salivation, pupil contraction and dilatation), and further acceleration of the respiratory and pulse rates; and (4) epileptic convulsions, continuous acute hypersynchronized discharges on the EEG, and further acceleration and onset of respiratory and pulse dysshythmias. EEG shifts were observed in all experimental animals, whereas shifts in respiration and pulse rate prior to the convulsive

USSR

BEREZIN, I. P., et al, Eksperimental'naya Khirurgiya i Anesteziologiya, No 6, Nov/Dec 70, pp 50-54

period did not occur invariably. Hence electroencephalography would appear to be the most reliable method of detecting early signs of exygen intoxication. The safe period for inhaling hyperbaric oxygen (3 atm) while awake was found to be 133±4.6 minutes for cats and 74±13.6 minutes for dogs.

USSR

UDC 669.71.018.9.4

BEREZIN, L. G., TSYPLUKHIN, I. P.

"Advantages of the Method of Electroflux Refining when Casting Ingots from Aluminum Alloys"

Metalloved. splavov legkikh met -- V sb. (Physical Metallurgy of Alloys of Light Metals -- collection of works), Moscow, Nauka Press, 1970, pp 98-100 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G208)

Translation: The advantages of the indicated method, which has been checked in practice, are described. The introduction of this method into production will improve the technological nature of the ingots and their quality. There are 3 tables and 1 illustration.

1/1

USSR

UDC 669.716:621.745.55:66.067

BEREZIN, L. G., and TSYPLUKHIN, I. P.

"Advantages of the Electroflux Refining Method In Casting Ingots of Aluminum Alloys"

Metallovedeniye Splavov Legkikh Metallov-Sbornik, Moscow, "Nauka", 1970, pp 98-100, resume

Translation: Advantages of the electroflux refining method in casting ingots of aluminum alloys are described. Introduction of this method into production increases the technology of ingots and improves their quality. One figure, three tables, two bibliographic references.

1/1

USSR UDC 620.171.5

VORONTSOV, V. K., POLUKHIN, P. I., and BEREZIN, M. V.

"A Method for Investigating Plastic Flow in Metal"

Plasticheskaya Deformatsiya Metallov i Splavov, Moscow, No 64, "Metallurgiya," 1970, pp 241-245

Translation: The polarization-optical method of investigating plastic flow of metals, using optically sensitive codings based on polyurethane resins, is proposed. It is proved that the size of deformation differences in the Euler conception may reach 2.4 and more. Pictures of isochromes, moire, and coordinate grids for a shaft compressed under conditions of flat deformation between flat plates are presented. On the basis of experimental data, a diagram is constructed of the relationship between the set of isochromes and the difference in deformations. The existence of a linear dependency between the optical effect and the variety of Euler (or LeGrange) deformations to a value of 1-1.2 is proved. Three figures and two bibliographic entries.

1/1

USSR

BASOV, N. G., BEREZIN, P. D., BLINOV, L. M., KOMPANETS, I. N., MOROZOV, V. N., and NIKITIN, V. V., Physics Institute imeni P. N. Lebedev, Academy of Sciences USSR

"Phase Modulation of Coherent Light by Means of Liquid Crystals"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 15, No 4, 20 Feb 72, pp 200-203

Abstract: The article describes results of a study of the effect of phase modulation with an electric field of coherent light passing through a nematic liquid crystal with positive anisotropy of permittivity ($\varepsilon_{\parallel} > \varepsilon_{\perp}$). Such modulation opens up the possibility of the use of thin transparent layers of liquid crystals in controlled phase transparencies and permits an increase in optical data processing speed as compared to the speed of other liquid-crystal light switches. Phase changes in the light passing through the liquid crystal were recorded by observing the interference of light reflected by a rear and a front electrode. 4'-ethoxybenzylidene-4-aminobenzonitrile was used as the liquid crystal.

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USSR

UDC: 537.312.62

(3)

BAYKOV, A. I., KLEYN, G. A., GORBACHEVA, L. S., ALIMOVA, R. N., MIKHAYLOV, S. M., LITVINOVA, I. I., BEREZIN, R. G.

"Investigation of Some Properties of the Ternary Alloy SS-2 in the Process of Deformation and Vacuum Annealing"

Moscow, Sverkhprovodyashchiye splavy i soyedin.--sbornik (Superconductive Alloys and Compounds--collection of works), "Nauka", 1972, pp 157-160 (from RZh-Radiotekhnika, No 12, Dec 72, abstract No 12D563 [résumé])

Translation: A series of experiments is done to determine the influence of intermediate annealing on the technological, mechanical, electrical and structural properties of wire made from SS-2 alloy, which is a member of the niobium-titanium-zirconium ternary system. The resultant data show that intermediate annealing embrittles SS-2 wire to a greater extent as the diameter of the wire decreases and the annealing temperature increases. X-ray structural analysis showed that there is no change in phase composition of the alloy under the given annealing conditions; all specimens have the structure of a β-solid solution with lattice parameter a = 0.325 nm. An examination of powder patterns obtained from annealed wire of all diam-

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USSR

BAYKOV, A. I. et al., Sverkhprovodyashchiye splavy i soyedin.--sbornik, "Nauka", 1972, pp 157-160

(3)

eters showed that the temperature for beginning of recrystallization of all diameters of wire is the same -- 700°C. Further annealing increases grain size, an especially intensive increase in grain size being observed at annealing temperatures of 1000 and 1100°C. One illustration, bibliography of six titles.

2/2

USSR

BEREZIN, V. A., and MARKOV, M. A. (Lebedev Physics Institute, USSR Academy of Sciences)

"Potentials of the Type a_n/r^n, $n > 1$, in Collapsing Systems of the General Theory of Relativity"

Moscow, Teoreticheskaya i Matematicheskaya Fizika, August 1972, pp 153-163

Abstract: A nonlinear generalization of the Maxwell equations is constructed which leads to static repulsive potentials of the type under consideration. The corresponding analogue of the Nordström-Reissner metric is constructed. Within the framework of classical (non-quantum) physics it is shown that the forces under consideration (a_n/r^{n+1}, $n > 1$) in the general theory of relativity do not lead to divergences of the self-energy of their source.

It is shown that in the case in which a collapsing system goes beyond the gravitational radium ("black hole") the classical forces a_n/r^{n+1}, $n > 1$, as well as the electrostatic and gravitational ones do not disappear in outer space. This result is contrary to the result obtained by Hartle (Preprint, University of California, 1971) for the pair neutrino forces ($\sim r^{-5}$).

The article includes 46 equations and three figures. There are nine bibliographic references.

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USSR

UDC 616.988.25-022.395.42-036.22(571.53+571.54)

VASENIN, A. A., GORIN, O. Z., and BEREZIN, V. G., Irkutsk Institute of Epidemiology and Microbiology

"Epidemiological Assessment of the Threat of Tickborne Encephalitis in the Cisbaykal Region"

Moscow, Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, No 3, 1972, pp 269-247

Abstract: New tourist facilities and sanatoria are being built along the shores of Lake Baykal in Eastern Siberia, an area in which an average of 1.6 cases of tickborne encephalitis per 100,000 population is recorded every year. In order to evaluate the danger to the increasing human population presented by the disease, the authors analyzed the incidence of tickborne encephalitis in Irkutskaya Oblast and the Buryat ASSR over the last 15 years, ran serological tests, and interviewed some 2000 persons living in 23 villages. They found that infected ticks are most likely to attack humans and animals in a band 10 to 100 m wide around Lake Baykal due to the mitigating influence of the water on the local climate. The growing season extends for 15 to 25 days into the autumn and the period of activity of the main vector Ixodes persulcatus P. sch. is shifted to mid-summer. The disease peaks toward the end of July.

1/1

BEREZIN, V. V.

virology

JPRS 55118

7 February 1972

UDC: 576.858.2301(470.46)

INVESTIGATION OF THE ECOLOGY OF ARBOVIRUSES TRANSMITTED BY MOSQUITOES USING SENTINEL ANIMALS IN THE VOLGA DELTA

[Article by V. V. Berezin, M. P. Chumakov, B. F. Semenov, I. A. Reshetnikov, K. Khannun, B. Corniu, Institute of Poliomyelitis and Viral Encephalitides, USSR Academy of Medical Sciences, Moscow, and Pasteur Institute, Paris; Moscow, Voprosy Virusologii, Russian, No 6, 1971, submitted 30 October 1970, pp 739-745]

In 1964, 1966, and 1968, a study was made of the activity of mosquito-borne arboviruses using sentinel animals: 18 species of wild birds (228 specimens); rabbits (35), guinea pigs (66), and adult albino mice (220). As a result of examination of the sentinel birds it was found that the intensity of circulation of West Nile and Sindbis arboviruses changes from year to year. The seasonal activity of Sindbis virus changes from year to year and is related to the seasonal activity of Mansonia richiardii mosquitoes. The seasonal activity of West Nile virus is more stable. As a result of examination of sentinal rabbits endemic sites of Tahyna virus were found in the seashore part of the Volga Delta. The main season of circulation of all three arboviruses is in the late summer. Investigations revealed that for each pathogen there must be a specific group of sensitive animals. In the study of activity of West Nile virus, best results were obtained with wild birds, rabbits, and albino mice. Guinea pigs were found not to be suitable for this purpose. For the study of Sindbis virus activity only birds and albino mice can be used. In the entire time of the investigations no antibodies to this virus were demonstrable in rabbits and guinea pigs, nor could they be detected upon serological examination of other wild and domestic mammals in the Volga Delta.

The use of sentinel animals as indicators of seasonal activity of tick-borne arboviruses has become popular for investigations pursued in the natural endemic sites of these infections [2-4]. Using sentinel animals it is possible to determine not only the presence of an arbovirus in the region studied but also the season, as well as intensity of its circulation.

The purpose of the present study was to determine the active season for mosquito-borne arboviruses in the Volga Delta, and the changes in intensity of the foci in different years. Another task was to determine the groups or species of sentinel animals that are most convenient for the study of each infection.

[I - USSR - C]

BEREZIN, YU.

Nuclear Physics

PERSONAL DOSIMETERS

Candidate of Technical Sciences [illegible] Solov'yev and Yu. Berezin

The so-called ionization chamber method which, as is known, employs the properties of a condenser, is used to measure gamma radiation doses. The chamber consists of two electrodes insulated from each other, and the space between them is filled with air.

Before use the ionization chamber is charged with a special device up to a particular voltage. The electrodes assume charge values is proportional to the capacitance of the condensing chamber.

When ionizing radiation acts on the chamber, ionization -- that is, the formation of electrons and positively charged electrodes and are neutralized when they reach them. As a result the chamber charge decreases a certain amount proportional to the gamma radiation dose. The voltages of the chamber electrodes change correspondingly. The size of this change can serve as a gage of the radiation dose.

The electrode voltage changes depending on the radiation dose and the chamber capacitance. The greater the capacitance, the smaller is the voltage reduction for an identical radiation dose. Therefore in order to increase the sensitivity of the dose meter can be measured, the chamber capacitance is increased artificially. This is done by connecting a capacitor with a high-quality dielectric in parallel with its electrodes.

There are several modifications of ionizing gamma dosimeters, differing by the measured dose range, the method for taking readings, the material of the structural components, and

USSR

UDC 533.95

BEREZIN, Yu. A. and DUDNIKOVA, G. I.

"The Influence of Thermal Conductivity Upon the Structure and Critical Parameters of Shock-waves in Plasma"

Novosibirsk, Zhurnal Prikladnoy Mekhaniki i Tekhnicheskoy Fiziki, No 2, March-April 1972, pp 8-14

Abstract: The results are presented of a numerical solution of the problem of the propagation of stationary and unsteady shock waves in cold rarefied plasma across a magnetic field in the presence of finite conductivity and electronic thermal conductivity, and a comparison is conducted with the results of a solution with thermal conductivity not taken into account. It is shown that at small Mach numbers ($M \leq 2.5$), the influence of thermal conductivity may be disregarded. For Mach numbers $2.8 \leq M \leq 3.3$, an isomagnetic density jump is obtained. Increasing the amplitude of the magnetic shield at the plasma boundary brings about destruction of the isomagnetic jump. The critical Mach numbers characterizing the shock wave are $M_{*} > 3.4$. 5 figures. 6 references.

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USSR

UDC 621.371.029.55

BENEDIKTOV, Ye. A., GETMANTSEV, G. G., YEZHOV, A. I., KOROBKOV, Yu. S., MALYSHEV, S. K., MATYUGIN, S. N., MITYAKOV, N. A., SAZONOV, Yu. A., CHERNOV, V. A., BEN'KOVA, N. P., BEREZIN, Yu. M., BUKIN, G. V., KOLOKOLOV, L. Ye., and PEREKHVATOV, Yu. K.

"Results of an Experiment in Shortwave Radio Propagation"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. Sekts. 3. (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses; Section 3--collection of works) "Nauka," 1972 pp 73-76 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10A367)

Translation: Results of experiments on investigating the characteristics of wave propagation in the decameter range (5.7-15.0 MHz) are analyzed; the communications took place between the following magnetically adjacent points: an ionospheric station in Gor'kiy and two science research ships in the Indian Ocean. In particular, the possibility of communication over the Peterson beam was estimated. Two illustrations, bibliography of one. N. S.

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USSR UDC 621.371.095.1

BEREZIN, Yu. V., MOROZOV, Yu. V.

"Effect of Large-Scale Ionosphere Nonuniformities on the Polarization of Reflected Waves"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. Sekts. 1 (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses; Section 1--collection of works) "Nauka," 1972 pp 393-397 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10A339)

Translation: It is shown that the cause of the dependence of the average field polarization and the depolarization coefficient on the rate of change of phase in the waves reflected from the ionosphere may be the focusing of waves reflected by large-scale nonuniformities of the ionosphere. Two illustrations, bibliography of four. A. L.

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USSR UDC 621.371.095.1

BEREZIN, Yu. V., GUSEV, V. D., and MOROZOV, Yu. V.

"Polarization Characteristics of Radio Waves Reflected from a Nonuniform Ionosphere"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. Sekts. 1 (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses; Section 1--collection of works) "Nauka," 1972 pp 388-392 (from RZh-Radiotekhnika, No 10, 1972, Abstract No 10A338)

Translation: Results are given of measurements of the polarization of the separate magnetic-ionic components in the range of 6-9 MHz, at the latitude of Moscow, which have not been clarified from the position of classical magnetic-ionic theory. To interpret the results, we must take into account the wave scattering by ionospheric nonuniformities. Two illustrations, bibliography of nine. A. L.

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USSR

BERKINA, A. I., and [illegible], K. V., Institute of [illegible] Sciences UkrSSR

"Study of the Influence of Recovery in the Alloy Co-9 [illegible]"

Sverdlovsk, Fizika Metallov i Metallovedeniya, Vol 16, No 3, [illegible], pp 467-[illegible]

Abstract: An x-ray study of the phenomenon of the recovery of [illegible] Co-Ti alloy demonstrates that the recovery effect results principally from structural aging of the solid solution. This study was performed by heating the Co-Ti alloys at 600 and 700° C for various lengths of time, then briefly heating them to 800, 900, and 1000°. After brief high-temperature heating, low-temperature aging was performed. In some cases, a number of cycles were performed consisting of [illegible] and low-temperature and brief high-temperature heating. The changes in hardness were studied with the [illegible] by specimens of the alloy after various heat treatments [illegible]. It was determined that high-temperature, short-term heating leads to a [illegible] hardness of the alloy in many cases even to the initial value (prior [illegible] to the hardened state). Subsequent low-temperature aging [illegible] and hardness of the alloy. The degree of recovery depends on the [illegible].

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USSR

BEREZINA, A. L., and CHUYSHOV, K. V., Fizika Metallov i Metallovedeniye, Vol 30, No 3, Sep 70, pp 587-594

a Co-Ti alloy aged at 700° for ten minutes, full recovery of hardness occurs after brief heating at 900 and 1000°, while partial recovery occurs after heating at 8[illegible]. The phenomenon of recovery in the Co-Ti alloy is due primarily from a decrease in the concentration of titanium in the [illegible] the γ-phase after high-temperature heating.

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BEREZINA, A.L.

Selected Translations ? Metallurgy JPRS 58611 30 March 1973

(3)

UDC 669. 25:536. 425

THE PROCESS OF PRECIPITATION IN A COBALT-TUNGSTEN-TITANIUM ALLOY

A. L. Berezina, L. P. Gun'ko, and E. V. Chuistov, Institute of the Physics of Metals of the Ukrainian SSR Academy of Sciences, submitted to press 1 February 1972; final version 26 April 1972

pages 1213-1218

By x-ray and electron-microscope methods in a clearance the process of precipitation in a Co--W--Ti alloy was investigated. In the temperature range of 500--600°, a homogeneous formation of an intermediate β'-phase with a structure $L1_2$ was observed. Its composition is presumed to be Co_3(W, Ti). The origin of the β'-phase is accompanied by the appearance of superstructural maximums and satellites on the x-ray photographs near the reflections from the cubic matrix (the β -phase). It was established that in the process of the growth of a particle of the β'-phase a periodic modulated structure is formed. Together with continuous precipitation of the β'-phase at temperatures of 650--700° an intermittent decay along the boundaries of the grains is also observed with a basic stable phase of Co_3W. The aging of the alloy Co--W--Ti at high temperatures (800--1000°) is characterized only by continuous precipitation.

The process of the decay of binary alloys of Co--Ti and Co--W has been quite well studied [1--6]. In the first of them, the precipitation of the excess phase (Co_3Ti of type Cu_3Au--$L1_2$) occurs basically with respect to a homogeneous mechanism with the formation of a modulated structure [1--5]. In the second, it occurs by a heterogeneous means, as a result of which it is primarily a pseudo-perlite (cellular) structure that is formed [6]. It is alternating plates of the phase of precipitation of Co_3W with a lattice of the Ni_3Sn (DO_{19}) type and an impoverished matrix (of the α-phase with a GPU lattice).

The purpose of this work is to ascertain the mechanism of decay in a ternary Co--W--Ti alloy, containing 7.4% (atomic) W and 1.6% Ti (atomic). It was assumed that alloying of the binary Co--W alloy with titanium may change the mechanism of precipitation from an almost purely heterogeneous mechanism toward a homogeneous mechanism. Such an assumption was based on the data from references [7, 8], in which high heat-resistance characteristics of this alloy were observed, which are usually not proper for systems with a purely heterogeneous mechanism of precipitation.

A Co--W--Ti alloy was prepared in an arc furnace in an atmosphere of purified argon, rolled at 1100°C in the air, and annealed at 1150° for 10 hours. An electron-microscopic investigation in a clearance was made, and an x-ray investigation of the coarse-crystal specimens. The progress of aging was controlled according to the variation of the hardness.

The specimens were hardened at 1200° in water in quartz ampoules and subjected to aging in the temperature range of 600--1100° for different times. The aging was performed in a vacuum of 10^{-3}--10^{-4} torr. Foils for the electron-microscopic investigation were prepared from discs with a diameter of 3 millimeters and a thickness of 0.2--0.3 millimeters by means of electric polishing in an electrolyte of 5--7% sulfuric acid, 1.25--2% hydrofluoric acid, and 91.75--93% methyl alcohol at a voltage of 50--70 volts and T=0°.

The morphology of the precipitation (the shape of the particles and the nature of their spatial distribution) was investigated according to the methodology in reference [9], as a rule in reflexes (100) of the well-ordered phase.

Results of the Experiment and their Discussion

In Figure 1 a curve of the variation of the hardness after isochronic annealings (1 hour) at various temperatures is shown. We may note the rapid growth of hardness at 600--700°, and the slow drop at 800--1000°C. The electron-microscopic and x-ray investigation made it possible to establish the structural variations occurring in the decay of the Co--W--Ti alloy.

USSR UDC 669.25/.295:621.785

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"Study of the Nature of Recovery in the Alloy Co-9 at. % Ti. III. Electron Microscope Study"

Moscow, Fizika Metallov i Metallovedeniye, Vol 30, No 5, 1970, pp 942-949

Abstract: Electron microscope techniques were used to study thin foils of aged Co + 9 at. % Ti alloy to determine the change in its microstructure after low-temperature and subsequent high-temperature heating. It was discovered that after this treatment, both dissolution of one portion of the γ phase segregations (Co_3Ti) and enlargement of another portion occur, increasing the regularity of their distribution. In addition to this, a decrease (recovery) in microhardness of specimens of the Co-Ti alloy was noted, which apparently can be explained by a decrease in the coherent stresses as a result of partial dissolution of the γ-phase segregations.

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Physical Properties

USSR UDC 669.25:537.311.3

BEREZINA, A. L., CHUDAKOV, A. F., and CHUISTOV, K. V., Institute of Metal Physics, Academy of Sciences Ukrainian SSR

"Study of the Recovery in Alloy Co -- 9 at. % Ti. Resisto- and Magnetometric Investigations"

Sverdlovsk, Fizika Metallov i Metalovedeniye, Vol 30, No 4, Oct 70, pp 774-779

Abstract: An investigation was made of the effect of short-duration high-temperature heating (T = 800°C -- 2 min and 900° C -- 1 min) on the magnitude of electrical resistance R and the magnetization saturation I_s of alloy Co -- 9 at. % Ti, which was pre-aged at much lower temperatures (500 -- 700°). The effect of recovery of the studied properties of the alloy after high-temperature treatment was established. It was assumed that the effect of recovery depends on the diffusion of concentration waves or separations whose dimensions are smaller than the critical one at the recovery temperature. The possibility of cyclical recovery R and I_s was determined. Study of the step-wise heating of the pre-aged Co--Ti alloy made it possible to define more accurately the nature of change of the spectrum of concentration waves as a result of gradual heating of pre-aged alloys.

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BEREZINA, G. A.

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BEREZINA, G. A., and ZHUKOV, K. I.

"The Use of the Method of Recording the Motor Acts of Writing in Order to Objectivize Psychological Tests and Research on Coordination of Movements"

Kiberneticheskiye Aspekty v Izuchenii Raboty Mozga [Cybernetic Aspects of the Study of the Brain's Functioning], Moscow, Nauka Publishing House, 1970, pp 171-187

Abstract: This article describes a procedure for recording the motor acts involved in the process of writing and the use of this procedure to carry out psychophysiological tests.

The procedure consists of the study of the oscillograms of the motor acts that occur in the process of writing. The motor acts are recorded with the aid of a special device. A description of this device is given.

The quantitative characteristics (with respect to time and amplitude) that are obtained for the motor acts make it possible to objectively evaluate the status of the coordination of movements in writing. The recording of written responses with the help of the instruments described makes it possible to use the procedure of studying the motor acts involved in writing to make certain psychological tests objective.

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BEREZINA, G. A., et. al., Kiberneticheskiye Aspekty v Izuchenii Raboty Mozga, Nauka Publishing House, 1970, pp 171-187

The procedure ensures that information on the fulfillment of psychophysiological tests is input directly from the man to a computer, thereby making it possible to process the results of psychophysiological research automatically.

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